

SECTION 07 2113

BOARD INSULATION

LANL MASTER SPECIFICATION

When editing to suit project, author shall add job-specific requirements and delete only those portions that in no way apply to the activity (e.g., a component that does not apply). To seek a variance from applicable requirements, contact the ESM Architectural POC.

When assembling a specification package, include applicable specifications from all Divisions, especially Division 1, General Requirements.

Delete information within "stars" during editing.

Specification developed for ML-3 projects. For ML-1 / ML-2, additional requirements and QA reviews are required.

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Polyisocyanurate board roof insulation and related materials.
- B. Separation board
- C. Fire rated assembly materials (metal decking)

1.2 SUBMITTALS

- A. Submit the following in accordance with Section 01 3300, Submittal Procedures:
 - 1. Catalog Data: Manufacturer's data on product characteristics, performance criteria, and limitations.
 - 2. Installation Instruction: Manufacturer's special environmental conditions required for installation, and installation techniques.
 - 3. Samples:
 - a. Submit 6 by 6 inch samples of each board type.
 - b. Submit samples of each fastener type required.
 - 4. Shop drawings: Roof plan showing layout of boards and fastening patterns.
 - 5. Certificates: Manufacturer's certification that materials meet specification requirements.

6. Warranty: Submit sample warranty indicating conditions and limitations.

1.3 REGULATORY REQUIREMENTS

- A. International Building Code: ICBO IBC 2003.
- B. Underwriters Laboratory, Inc. (UL): Class A Fire hazard Classification.
- C. Factory Mutual (FM): Class I

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section 01 6000, Product Requirements.
- B. Deliver insulation in packages labeled with manufacture's name, material name, thermal value, and product code.
- C. When stored outdoors, stack insulation on pallets above ground or roof deck, slit or remove packaging, and cover with tarpaulin or other suitable waterproof coverings.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Do not install insulation on roof deck when water or ice is present. Do not apply roofing materials when substrate is damp or wet or when proper adhesive temperature cannot be maintained.

PART 2 PRODUCTS

2.1 PRODUCT OPTIONS AND SUBSTITUTIONS

- A. Alternate products may be accepted; follow Section 01 2500, Substitution Procedures.
- B. Provide all thermal roof board insulation from a single manufacturer.
- C. Membrane manufacturer shall approve board insulation type/facing and assembly boards.

2.2 ACCEPTABLE MANUFACTURERS OF POLYISOCYANURATE BOARD INSULATION

- A. Atlas Roofing Corp., AC Foam.
- B. Celotex, Sturdy-R.
- C. Johns Manville, Energy-2.
- D. Rmax, Multi-FaxFA.

2.3 POLYISOCYANURATE BOARD INSULATION

- A. Rigid, closed-cell polyisocyanurate foam core, integrally laminated to manufacturer's standard facing, in accordance with ASTM C1289, Type II.
 - 1. Compressive Strength: 20 psi
 - 2. Thermal Resistance: Aged R of 6.0 per inch thickness in accordance with ASTM C518 and PIMA Bulletin 101.
 - 3. Thickness: As specified in Contract documents.
 - 4. Flame/Smoke Properties: Comply with the requirements for FM Class I
 - 5. Facing: Compatible with roofing membrane and approved by membrane manufacturer.
 - 6. Tapered Board Insulation: Factory cut system, taper [1/4 inch per foot (minimum)] [as specified in Contract documents], material to have beginning of taper equal to primary board insulation. Material and facing to match roof board insulation.
 - 7. Roofing Cricket: Tapered factory cut and designed, triangular shaped, taper 1/4 inch per foot. Material and facing to match roof board insulation.

2.4 SEPARATION BOARD

- A. 25/32 inch asphalt impregnated on 6 sides.

***** [OR] *****

- B. 23/32 inch oriented strand board (OSB).

***** [OR] *****

- C. 1 inch rigid fiberglass board.

2.5 FIRE RATED ASSEMBLY MATERIALS (METAL DECKING)

- A. Material as required for [1] hour rating per UL or FM assembly.

2.6 RELATED MATERIALS

- A. Fasteners: Factory Mutual approved and as required by insulation manufacturer and job specific conditions.
- B. Base Ply: As recommended by membrane manufacturer.

- C. Hot Applied Asphalt: ASTM D312, Type III or Type IV.
 - 1. Use only on approved board insulation types.
 - 2. Provide with labels indicating flash point, softening point, finished blowing temperature, and equiviscous temperature.
- D. Cold Applied Adhesives: Factory Mutual approved and as required by membrane manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine roof deck for suitability to receive insulation. Verify that substrate is dry, clean, and free of foreign material, or material that is incompatible with adhesive that will result in damage to insulation or impede installation.
- B. Verify roof drains, scuppers, roof curbs, nailers, equipment supports, vents, and other roof accessories are secured properly.
- C. Start of installation indicates installer accepts conditions of existing deck surfaces.

3.2 INSTALLATION

- A. Verify deck surfaces are dry and free of snow or ice.
- B. Refer to Contract documents for roof insulation thickness.
- C. Lay boards with edges in moderate contact without forcing. Cut insulation and separation boards to fit neatly to existing coping.
- D. Tape joints of insulation per insulation manufacturer's instructions.
- E. Install specified insulation per manufacturer's latest printed instructions and as required by governing codes.
- F. Install with end joints staggered; avoid having insulation joints coinciding with joints in deck.
- G. Apply a minimum of 2 board insulation layers with joints staggered.
- H. Joints and seams shall be a tight fit to prevent any gaps, voids and surface irregularities.
- I. Apply one layer of separation board over insulation prior to applying roof membrane. Inspect surface of insulation board prior to installation of separation board. Surface shall be clean and smooth with no excessive surfaces roughness

or unsound surfaces such as broken or delimitation insulation boards. Secure separation board to insulation with Type III or IV hot applied asphalt or cold applied adhesive approved by membrane manufacturer.

3.3 INSULATION ATTACHMENT

A. Fully adhere insulation to substrate with Type III or IV hot applied asphalt or cold applied adhesive with application rate complying with FM [1-90] requirements, and approved by membrane manufacturer.

B. Mechanical Fasteners:

Mechanical fasteners may be used for securing insulation to wood or metal decks. Do not use on concrete decks.

1. Mechanically fasten insulation to substrate with fasteners/plates and pattern complying with FM [1-90] requirements and approved by membrane manufacturer.
2. Fasteners shall have minimum penetration into deck as recommended by fastener and membrane manufacturer. Maximum fastener exposure beyond deck baring surface shall not exceed 1 inch.
3. Use fastener tools with depth locator as recommended or supplied by fastener manufacturer to ensure proper installation.
4. Perform pullout tests for LANL Construction Inspector to verify deck conditions and actual pullout values prior to installation of membrane.

3.4 CLEANING / PROTECTION

A. Do not leave installed insulation exposed to weather. Cover and waterproof immediately after installation.

1. Temporarily seal exposed insulation edges at the end of each day by lapping roofing membrane over edge to form a seal. Remove seal when Work resumes.
2. Remove installed insulation that has become wet or damaged and replace with new insulation material.

B. Protect insulation from traffic with protective covering materials during and after installation.

END OF SECTION

Do not delete the following reference information:

FOR LANL USE ONLY

This project specification is based on LANL Master Specification 07 2113 Rev. 0 dated January 6, 2006.